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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/648,340	08/27/2003	Kiyoshi Ogishima	4034-40	5339
23117	7590	11/01/2005	EXAMINER PARKER, KENNETH	
NIXON & VANDERHYE, PC 901 NORTH GLEBE ROAD, 11TH FLOOR ARLINGTON, VA 22203			ART UNIT 2871	PAPER NUMBER

DATE MAILED: 11/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/648,340	<b>Applicant(s)</b> OGISHIMA ET AL.	
	<b>Examiner</b> Kenneth A. Parker	<b>Art Unit</b> 2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 27 August 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) 14-19 is/are allowed.
- 6) ☒ Claim(s) 1,2,4-8 and 10-13 is/are rejected.
- 7) ☒ Claim(s) 3 and 9 is/are objected to.
- 8) ☒ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 1-2, 4-8, 10-13 are rejected under 35 U.S.C. 102(e) as being anticipated by Song 6710837.**

The reference shows regarding claim 1. A liquid crystal display device comprising a first substrate 100, a second substrate 200, and a vertical alignment type liquid crystal layer including liquid crystal molecules having negative dielectric anisotropy disposed between the first substrate and the second substrate (column 4, lines 1-20), the device having a plurality of picture-element regions each defined by a first electrode 10 placed in the first substrate on the side facing the liquid crystal layer and a second electrode 20 placed in the second substrate to oppose to the first electrode via the liquid crystal layer, in each of the plurality of picture-element regions, the liquid crystal layer having a plurality of liquid crystal regions different in the direction in which liquid crystal molecules tilt when a voltage is applied between the first electrode and the second electrode (the combination of slit patterns and protrusions gives different regions with

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different tilts), wherein at least one of the first substrate and the second substrate has a light-shield layer overlapping at least part of boundary region defined as regions separating the plurality of liquid crystal regions from each other (shown in figure 11), and the at least part of boundary region overlapping the light-shield layer is a region permitting liquid crystal molecules surrounding the region to tilt so that ends of the liquid crystal molecules closer to the substrate having the light-shield layer go away from the region when a voltage is applied between the first electrode and the second electrode. As the homeotropic liquid crystal moves according to its pretilt direction (inherently), the regions with pretilt away from the boundary on the substrate side which has the light blocking layer tilt away from those boundary. Also, keep in mind that a region that has a light blocking layer on one substrate present on both sides must have one side where the liquid crystal tilts away from the region (and one side where it tilts toward the region). For example, looking at figure 13, the molecules either tilt towards the inner region and away from the outer or visa versa, and in figure 11 they either tilt towards 170 and away from the center boundary (or 270- not labeled), or visa versa. As some molecules have to move toward some boundary regions and some away, the limitation is met as the feature must be present in some of the boundary regions.

The reference shows regarding claim 2. The liquid crystal display device of claim 1, wherein the light-shield layer is placed with a predetermined spacing from the liquid crystal layer (predetermined here is interpreted not to imply a specific distance, only a physically set difference. Therefore being predetermined is inherent, as the thickness is

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physically set.).

The reference shows regarding claim 4. The liquid crystal display device of claim 1, wherein at least one of the first substrate and the second substrate has at least one protrusion having a slant side 55formed on the surface facing the liquid crystal layer, and the direction in which liquid crystal molecules tilt in each of the plurality of liquid crystal regions is defined by orientation-regulating force of the at least one protrusion (inherent).

The reference shows regarding claim 5. The liquid crystal display device of claim 1, wherein at least one of the first electrode and the second electrode has at least one opening (4), and the direction in which liquid crystal molecules tilt in each of the plurality of liquid crystal regions is defined by an inclined electric field generated at an edge portion of the at least one opening when a voltage is applied between the first electrode and the second electrode (inherent).

The reference shows regarding claim 6. The liquid crystal display device of claim 1, wherein at least one of the first substrate and the second substrate has at least one protrusion having a slant side formed on the surface facing the liquid crystal layer, at least one of the first electrode and the second electrode has at least one opening (both shown in figure 5), and the direction in which liquid crystal molecules tilt in each of the plurality of liquid crystal regions is defined by orientation-regulating force of the at least

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one protrusion and an inclined electric field generated at an edge portion of the at least one opening when a voltage is applied between the first electrode and the second electrode (inherent function).

The reference shows regarding claim 7. The liquid crystal display device of claim 1, wherein the first substrate further includes switching elements (tft's listed in column 2, lines 43-50) respectively placed to correspond to the plurality of picture-element regions, and the first electrode comprises a plurality of picture-element electrodes (at same as above) respectively placed for the plurality of picture-element regions and switched with the switching elements, and the second electrode comprises at least one counter electrode opposed to the plurality of picture-element electrodes (inherent- a voltage differential requires a second electrode opposite).

The reference shows regarding claim 8 met as described above with respect to claim 1, however lacks a first liquid crystal region of which the retardation value for light incident on the liquid crystal layer obliquely from the normal to the liquid crystal layer increases with rise of an applied voltage and a second liquid crystal region of which the retardation value first decreases and then increases, wherein the device comprises a light-shield layer selectively shading the first liquid crystal region when the device is observed in a direction oblique from the normal to the display plane. The light shield is shown at the disclination regions which are the region boundaries, but it is unclear whether the change in retardation happens as claimed. It appears as though this function should be

inherent, as the structure is the same as applicants protrusions and slits, so the retardation behaviour should be the same.

The reference shows regarding claim 10. The liquid crystal display device of claim 8, wherein at least one of the first substrate and the second substrate has at least one protrusion having a slant side formed on the surface facing the liquid crystal layer, and the direction in which liquid crystal molecules tilt in each of the plurality of liquid crystal regions is defined by orientation-regulating force of the at least one protrusion (see discussion above re claim 4).

The reference shows regarding claim 11. The liquid crystal display device of claim 8, wherein at least one of the first electrode and the second electrode has at least one opening, and the direction in which liquid crystal molecules tilt in each of the plurality of liquid crystal regions is defined by an inclined electric field generated at an edge portion of the at least one opening when a voltage is applied between the first electrode and the second electrode (see discussion above re claim 5).

The reference shows regarding claim 12. The liquid crystal display device of claim 8, wherein at least one of the first substrate and the second substrate has at least one protrusion having a slant side formed on the surface facing the liquid crystal layer, at least one of the first electrode and the second electrode has at least one opening, and the direction in which liquid crystal molecules tilt in each of the plurality of liquid crystal

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regions is defined by orientation-regulating force of the at least one protrusion and an inclined electric field generated at an edge portion of the at least one opening when a voltage is applied between the first electrode and the second electrode (see discussion above re claim 6).

The reference shows regarding claim 13. The liquid crystal display device of claim 8, wherein the first substrate further includes switching elements respectively placed to correspond to the plurality of picture-element regions, and the first electrode comprises a plurality of picture-element electrodes respectively placed for the plurality of picture-element regions and switched with the switching elements, and the second electrode comprises at least one counter electrode opposed to the plurality of picture-element electrodes (see discussion above re claim 7).

***Allowable Subject Matter***

Claims 14-19 are allowed.

Claims 3 and 9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: None of the prior art taught or suggested the device as claimed where the a light-shield layer overlapping at least part of regions in which liquid crystal molecules tilt in directions substantially parallel to the polarization axes of the pair of polarizing plates.



### ***Response to Arguments***

Applicant's arguments filed 8/19/05 have been fully considered but they are not persuasive. Applicant's argument is that the amendment clarifying that the liquid crystal molecule ends at the side of the substrate with the light blocking layer move away from the boundary regions is not agreed with, as many regions have light blocking layers at both sides of the region, and therefore one of the sides must have the molecules moving towards the region, but the other side must have the molecules moving away. Looking at figure 6, if there is a light shield over 27 on substrate 100 (which is present in the configurations of the embodiments of figures 11 and 13 and others), the liquid crystal molecules tilt away from that boundary, and towards any light shield that overlaps 17. Looking at 11, the region dividers at opposite sides of the regions, such as 170 or 270 (unlabeled but show), one has to tilt towards and one away. It appears as though 170 would be the towards boundary, and 270 the away)- the same with the regions of figures 12, 13 and 14.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

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TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenneth A. Parker whose telephone number is 571-272-2298. The examiner can normally be reached on M-F 10:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on 571-272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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A handwritten signature in black ink, appearing to read 'Kenneth A. Parker', written over a horizontal line.

Kenneth A Parker  
Primary Examiner  
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